HDR brachytherapy in soft tissue sarcomas allows increase dose treatment

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Background. Treatment with radiation therapy associated to sparing limb surgery in soft tissue sarcomas has shown a clear benefit in improving local control and survival in high grade tumors; the best radiation therapy technic is still debating.
Purpose. To evaluate response and toxicity of patients treated with HDR brachytherapy at Navarra Hospital.
Methods. Between 2009 and 2012, 22 patients underwent spearing limb surgery and perioperative brachytherapy 20 Gy in 5 fractions or intraoperative brachytherapy for recurrent disease 10 Gy in one fraction; plus adjuvant external beam radiotherapy (EBRT) 50 Gy(3D or IMRT) or neoadjuvant 45 Gy. Acute and late radiation toxicity was scored by CTCAE v4.0 criteria.
Results. The median age was 57 years. Most of them had adipocitic tumors (27%) followed by fibrohistiocytic (22.7%), fibroblastic (13.6%), uncertain differentiation (13.6%), peripheral nerves sheath (9.1%), locally aggressive intermediate grade tumors (9.1%) and leiomyosarcoma (4.5%). The median tumor size was 8.25 cm. 31% were stage IB, 18.2% were IIA and 13.6% III. 73.6% were located in the lower limbs and 22.7% in the superficial trunk. Brachytherapy: 19 patients perioperative and 3 intraoperative; 20 patients had adjuvant EBRT and 2 neoadjuvant. Acute toxicity grade 2 or superior: 9.1%(2p) had G3 infection, G2 and G4 dehiscence in 4.5% for both, G2 necrosis in 4.5%, G2 haematoma in 4.5%, G2–G3 radiodermitis: 35%. Late toxicity was detected in 2p: G2 pain 4.5%, lymphedema G2–G3 9.1% and 18.2% respectively, G2 neuritis in 4.5%. Acute or late toxicity did not correlate with PTV volume neither Homogeneity Index. Only 18% of all patients had local recurrence; 13.6% and 4.5% of them had a second and third recurrence respectively. Systemic recurrence was seen in 2 patients, one dead by disease. Local disease free survival at 2 years was 83%.
Conclusion. HDR brachytherapy is a safe procedure with low rate of toxicity even increasing total dose directly in the tumor bed and shorting whole treatment time.

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HDR-brachytherapy for partial breast irradiation (PBI)

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Purpose & objectives. PBI is an alternative modality of treatment suitable for patients with low-risk early breast cancer after conservative surgery. Herein, we describe the complete procedure for PBI.
Material & methods. A complete description of the implantation, planning and treatment technique for PBI is described based on a recent case performed in our department. A 78 years old lady underwent on Monday to the operating theatre for implantation, under local anaesthesia, of 16 wires of 18 cm long, located in 3 planes according to the rules described by the Paris system. Afterward, steel needles were replaced by plastic tubes and a CT scan of the whole breast for physical planning purpose was acquired. A total dose of 34 Gy was prescribed in 8 fractions of 4 Gy, b.i.d. with at least six hours apart between fractions. Brachytherapy was delivered by using an HDR-Microselectron (Nucletron) afterloader under the radiotherapist supervision. The patient was in-ward during a whole week. After delivering of the 8th fraction, plastic tubes were removed and the patient was discharged without any complications.
Results. Rationale for PBI relies on the well-known fact that most of ipsilateral breast local relapses are located on, or in the immediate vicinity, of the surgical bed. This modality of brachytherapy allow us to reduce total treatment time from the standard 3 weeks to 1 week and contributes to a better quality of life for the patients. However, we only consider PBI for those patients that meet the GEC-ESTRO criteria of low-risk and therefore suitable for this sort of treatment.
Conclusions. PBI is an attractive alternative to whole breast radiotherapy, especially in those cases of low-risk breast cancer.

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HDR-BRT boost in breast cancer. Does hypofractionation influence toxicity?

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Introduction. The role of brachytherapy (BRT) boost in the management of breast cancer treated conservatively is more than consolidated.
Objectives. To evaluate our results in terms of toxicity and confirm the hypothesis that it is the same whether the fractionation of the whole breast radiotherapy administered previously is conventional (46–50 Gy/23–25 sessions) or hypofractionated (40.05 Gy/15 sessions).